TECHNOLOGY FOR

Alaskan Transportation

"Improving Alaska's quality of transportation through technology application, training, and information exchange."

Summer 1994
Vol. 19 No. 2

IN THIS ISSUE . . .

INSERTS . . .

CALENDAR OF EVENTS

This newsletter is funded by a grant from the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities.

Revegetation Strategies For Disturbed Sites In Northern Alaska

by Janet G. Kidd, Senior Research Biologist, Alaska Biological Research, Inc.

Most road construction in Alaska results in some type of disturbance to natural vegetation. Activities may include clearing vegetation on alignments, placing fill on vegetation, and developing quarries to obtain fill. After a road is constructed or a quarry is abandoned, some level of revegetation effort frequently is necessary to minimize the environmental impact of the construction and maintain road integrity. Specific benefits of revegetation include maintaining road alignment and stability (e.g., erosion control), improving highway aesthetics (e.g., highway beautification programs), creating wildlife habitat (ponds in quarries), restoring wetland resources, and preserving environmental health and safety.

Several approaches currently used for revegetating land disturbed by oil development and mining have application in revegetating land disturbed by road construction. In the Kuparuk Oilfield, several gravel pits have been turned into overwintering fish habitat (Hemming 1992), and overburden impoundments and stockpiles have been manipulated to create aquatic and

(continued on page 2)

Summer Pavement Maintenance

By Walter P. Kilareski, Professor of Civil Engineering, Penn State

The summer months are especially busy for highway maintenance crews. Sometimes we become so wrapped up in completing all of the work that we lose sight of good maintenance practices. Here are a few things to consider.

Drainage, Drainage, Drainage

Most pavement problems can be traced to poor drainage conditions. Research studies show that a pavement should be drained to an 85 percent saturation level within five hours of the end of a rainfall. Pavements that remain saturated longer than five hours usually have weakened subgrades and base layers. In order to have good drainage you need to attend to the following:

Pavement Cross-Slope

First, make sure the pavement is properly crowned. A two percent cross-slope is adequate for a paved surface. Gravel and soil roadways should have a steeper cross-slope of approximately 4 percent.

Shoulders should be maintained so that water will run into side ditches.

(continued on page 3)

Revegetation Strategies . . .
(continued from page 1)

upland communities important for migratory waterfowl and caribou (Jorgenson et al. 1992). In the Prudhoe Bay Oilfield, removal of gravel fill combined with plant cultivation have encouraged the establishment of wetland communities (Kidd et al. 1992). The extent of damage to vegetation disturbed in permafrost can be reduced using a combination of geotextile materials and plant cultivation (Kidd and Jorgenson 1994).

In an effort to establish plant communities that are integrated with the landscape in which they occur and that are self-sustaining over time, new approaches to revegetation are being developed that include native plant materials and natural soil amendments. The use of native plant species in revegetation efforts has several advantages over cultivated species. First, native species are better adapted to the harsh conditions that can occur in the arctic and subarctic than cultivated species that come from more southern climates. Second, native species are more likely to restore important habitat functions such as forage and cover for wildlife. Finally, introduction of exotic species may hamper natural colonization of disturbed areas by competing with native species for

limited moisture and nutrients.

Currently, there are 3-5 native-grass cultivars (see editors note) that are commercially available, and research is being conducted to evaluate the use of several legumes and other forbs in revegetating disturbed areas (Jorgenson et al. in press). With continued research, it may be possible to add these species to the list of commercially available native species. In addition to seeding efforts, transplants of native plant species (e.g. tundra plugs and grass sprigs) also have been used to establish wetland vegetation.

Increasing soil productivity is one of the most important elements for successful revegetation. Several innovative approaches are currently being evaluated for improving soil properties: 1) cultivating legumes containing nitrogen-fixing bacteria to increase soil nitrogen, 2) adding mycorrhizal fungi (see editors note) through soil transfer to increase soil nutrient absorption by plants, and 3) adding organic matter to improve soil texture, increase soil water-holding capacity, and to provide nutrients and a potential seed bank. Enhancing soil properties for revegetation efforts not only improves the chances of successful establishment of vegetation, but increases the likelihood of long-term site stability with minimal human intervention. (Editor's note: This equates to less expensive monitoring and avoids potential subsequent revegetation.)

Successful revegetation of disturbed lands such as those associated with road construction requires a holistic view of ecosystem recovery, incorporating plant species that are successful at colonizing disturbed areas, but that also provide ecosystem functions such as wildlife habitat and biological diversity. This includes recognizing the importance of the soil substrate as part of the revegetation effort. Although research is ongoing to refine this approach, much still needs to be learned about how to commercially cultivated native plant species adapt to disturbed environments, and how to manipulate soil characteristics to optimize seed germination and plant growth.

Complete citations available upon request.

Editor's note: cultivar means commercially selected plant.

Mycorrhizal fungi is a type of fungi associated with roots.

Watch for Alaska T² training announcements in early winter '94/spring '95 that deal with incorporating bioengineering into highway projects. ◆

News & Views

New Part VI of the MUTCD

Part VI titled, "Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations," sets forth basic principles and prescribes standards for temporary traffic control zone operations on streets and highways in the United States. A metric conversion factors table is included on the inside front cover.

Some specific items included in the text are traffic control devices, work message signs, and modified arrow panel display specifications.

FHWA has determined that this action is not a significant regulatory action. It adds some new, alternate traffic control devices, and a few of the new or changed requirements.

Copies of MUTCD are available for $16 from the Government Printing Office, Superintendent of Documents, Stock No. 050-001-00316-3, Washington, D.C. 20402, (202) 783-3238.

Article adapted from the Northwest Technology Transfer Center "Bulletin," Issue Number 42, Spring 1994, by Ed Lagergren, P.E. ◆

Vehicle Crashes Third In Cause of Deaths

Motor-vehicle crashes account for 15 percent of worker deaths in the construction industry, according to the National Highway Institute for Occupational Safety and Health (NIOSH). They are the third leading causes of death behind falls (26 percent) and electrocution (17 percent), NIOSH said.

Timothy Pizzatella of the NIOSH Division of Safety and Research said that 1,143 construction workers die each year. Thirty percent of motor-vehicle-related deaths involved construction workers standing near a vehicle, 15 percent occurred when a worker lost control of a vehicle and 9 percent involved nontraffic-related incidents.

FHWA to Study Road Construction

The FHWA is reviewing applications for a $1 million study of work-related injuries and deaths among highway construction workers. The study will identify the causes of injuries and ways to prevent them.

Reprinted from "Traffic Safety," Nov/Dec 1993. ◆

Summer Pavement Maintenance
(continued from page 1)

The shoulder cross-slope should be between 4 and 6 percent. Remember, the algebraic difference in the pavement crown and the shoulder should not be greater than eight. Maintaining the correct difference will reduce the likelihood that a vehicle will roll over if it leaves the roadway. For example, a pavement with a crown of 2 percent should have a shoulder with a maximum cross-slope of 6 percent.

Crown and cross-slope are difficult to correct after a surface has been paved. Good construction control is needed. You may have the opportunity to grade shoulders if they are gravel or grass, but remember, keep an eye on the cross-slope.

Pennsylvania's rule of thumb may not apply to roads built to certain FHWA standards. Be sure to maintain the crown, shoulder slopes, and sideslopes for good drainage, and according to the appropriate roadway design criteria.

Ditches and Swales

After the water travels over the shoulder, it must be kept flowing into the ditch. This means that you should inspect and clean ditches. Junk, debris, and sediment accumulate in ditch lines and reduce the flow. Ditch slopes of 2 to 3 percent are adequate to keep water flowing and to scour debris. Steep slopes promote erosion of ditches. Rip-rap (large stones) can be used to prevent erosion. While you are cleaning ditches, check culverts and headwalls. Keep them clear and in good condition.

Sealing Joints and Cracks

Water can enter the pavement through unsealed cracks and joints. Alaska's climate is much different than Pennsylvania's and our "summer" is much shorter. In Alaska, late fall usually brings cold temperatures and snow. Because of the type of climate and the short summer season here, we need to perform maintenance operations such as crack sealing when the weather allows. Opposed to Pennsylvania's climate, sealing should be done in the late fall when temperatures are lower, and joints and cracks are open. Various segments of highways in the Interior region have been crack sealed using a rubberized sealant during the summer months with very good results.

Surface Treatments

There is more art than engineering to constructing a surface treatment. Either you have the experience to do it right, or there is a good chance you will construct it wrong. There are, however, some things you can do to improve your chances of success with a surface treatment. Construct the surface treatment when the weather is good. Asphalt emulsions do not cure very well when the pavement is wet or very damp. Use clean aggregates. Dirty aggregates do not adhere to the asphalt. Use the appropriate amount of oil. Too little oil will result in an excess amount of chips being lost and too much oil could result in a bleeding patch. Typically, too much asphalt is used, resulting in a bleeding pavement. Apply the aggregate *immediately* after you "shoot" the asphalt. Seat the aggregate with a rubber tire roller, and keep traffic off the roadway for as long as possible. The longer you keep traffic off the pavement, the better the performance of the surface treatment.

Adapted for Alaska from the Pennsylvania Local Roads Program's, "Moving Forward," V11, N3, July '93, with help from Bob McHattie, Geotechnical Engineer, and Jason Regar, Acting Fairbanks Area Manager, Northern Region DOT&PF. ◆

FHWA Clarifies Metric Restrictions

In response to Section 331 of the 1993 appropriations bill prohibiting the use of federal funds for metric signing (see Nov. 1993 *Signal*), the FWHA has issued a memorandum to provide guidance. The memo, dated November 23, 1993, explains that Section 331 **does not** restrict the design, construction, erection of signs to metric specifications. Only when signs involve the display of metric units of measure (such as speed limit, distance, etc.) is the restriction effective. Since the funding restriction only applies to federal funds made available during the fiscal year 1994, there is still a need for a metric sign implementation policy to assure uniform metric units and practices.

The FHWA further stresses to the states and others that the one-year moratorium on federal funding of metric signs should not affect the progress the FHWA and the states are making in other areas of the program. The FHWA will still be requiring metric PS&Es by October 1, 1996, and they will continue to follow their original plan to modify the MUTCD to incorporate metric units in the 1996 edition.

Reprinted from "ATSSA Signal," March 1994, American Traffic Safety Services Association, Inc.

Other articles about metrics:

"Metric Highways Revisited" by Jay K. Lindly and Daniel S. Turner, January-February 1994, TR NEWS No. 170 pp. 10-12.

"Oregon Experiment With Anti-icing Operations," April 1994, Better Roads, pp. 33-34.◆

Right Before Your Eyes

ATSSA announces the release of a free public awareness video titled, **Right Before Your Eyes**. Its goal is to increase awareness of the vital role pavement markings play in traffic safety, and to emphasize that this issue needs the attention and involvement of public and government agencies.

Citizens can help make the roads safer by becoming more informed and involved in the upkeep of their community's streets and highways.

For a free copy of ATSSA's video and the accompanying brochures, contact ATSSA, 5440 Jefferson Davis Highway, Fredericksburg, VA 22407, (703) 898-5400. You can also borrow this video and brochure from the Alaska T^2 Program. Contact Susan Earp at (907) 451-5320.◆

For the Record . . .

"Congress keeps writing and writing to my office asking, 'Why are you guys pushing metrics?' We have to keep telling them, 'Because you guys passed a law.'"

— Anthony Kane, associate administrator for program development at the Federal Highway Adminsitration (Construction Marketing Today, March 1994).◆

Curb Ramps Required During Resurfacing

by Jonathan D. Woods

The United States Third Court of Appeals has upheld the District Court for the Eastern Court of Pennsylvania which ordered the City of Philadelphia to install curb cuts in sidewalks whenever it resurfaced its streets. Kinney v. Yerusalim, 9F.3d 1067 (3rd Circuit 1993). While this case is not binding on Alaskan courts, the decision is well reasoned under the law and likely to be followed if this issue is addressed by the Alaska state and federal courts.

The Third Circuit affirmed that Title II (public services) of the Americans With Disabilities Act (ADA) requires the creation of curb cuts or ramps adjacent to streets which are resurfaced after January 26, 1992 (the effective data of Title II). Section 4.7.1 of the ADA Accessibility Guidelines provides that curb ramps shall be provided wherever an accessible route crosses a curb. An exterior accessible route is defined to include parking access aisles, crosswalks at vehicular ways, ramps and lifts.

The course said resurfacing streets constitutes an "alteration," must make alterations accessible when they affect "usability." The Title II regulations, issues by the United States Department of Justice, specifically mention the installation of curb ramps and requires them in all "newly constructed or altered" streets, roads or highways, or in newly constructed or altered pedestrian walkways that intersect with streets, roads or highways.

The City argued its duty under the "alteration" regulations only applies to the portion of the facility altered. Since the resurfacing only affected streets, the City contended no obligation was triggered to alter curbs or sidewalks. Citing the broad construction applied to remedial statutes like the ADA, the course said resurfacing a street affects its usability by making driving on crossing streets easier and safer for both pedestrian and vehicular traffic. The court concluded that resurfacing a street is an alteration under Title II.

Further, the court held that the City could not claim an "undue financial burden" because the defense only applies to modifications of "existing facilities" under Title II and not to alteration or new construction. The appellate court stated that even if installing curb cuts gradually is included as part of a municipality's transition plan under Title II, the municipality must still make curb cuts when altering roads.

Adapted from "Oklahoma Local Government News," Spring 1994 issue; previously reprinted from "OMAG News," March 4, 1994, for Alaska. ♦

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Quality Material Key to Better Pothole Patches

Patching potholes is a routine, yet crucial task for most highway departments. Left unfilled, potholes threaten motorist safety, and they damage vehicles and tires. Too often, maintenance crews, working dangerously close to traffic, seem to be fighting a losing battle: they repair a pothole, only to find it in need of repair a short while later. Yet patches at other times hold up well. What accounts for this difference?

One of SHRP's research projects evaluated the performance of various cold-mix asphalt patching materials and techniques. The study, part of a larger project that also included crack sealing, joint sealing, and spall repairs, took place over an 18-month period. During this time, 108 evaluations were conducted at 22 test sites throughout the continental United States. All told, 1,250 pothole patches were placed and studied.

The results are a bit surprising. When quality materials were used, the throw-and-roll procedure (that is, just dumping the patch material in the hole, with no preparation, and then driving the truck over the patch several times) was found to be just as effective as the semi-permanent procedure (defined as "doing it right," by squaring up the sides of the hole before filling it). What seemed to matter more was the quality of material and workmanship, not the procedure used to fill the hole.

The preliminary findings of the study, which also evaluated spray-injection and edge-seal procedures, underscore the importance of quality material and workmanship.

- The only four experimental patches to perform significantly poorer than the control patches were those consisting of inexpensive cold-mix materials. Here, ravelling—the loss of aggregate—caused the pothole to reappear in less than one month.

- The higher labor and equipment cost and lower productivity of the semi-permanent technique usually make the throw-and-roll technique more cost effective, provided quality materials are used.

- Although pothole patches are usually intended to be temporary repairs, use of a high-quality material can extend the patch's life to more than a year.

- Potholes filled by the spray-injection technique held up as well as the control patches, but the performance of this technique is largely dependent on the skill of the operator.

These findings led three of the eight participating agencies to discontinue the use of inexpensive, but poorly performing local cold mixes; they switched to one of the materials that performed well in the study.

The proprietary UPM High-Performance Cold Mix served as the control material at all sites. Experimental material included: PennDOT (Pennsylvania Department of Transportation) 485 and 486; proprietary mixes Perma-Patch and QPR 2000; modified high-float medium-set emulsion (HFMS-2) with Styrelf; spray-injection materials; and local materials.

To determine the cost effectiveness of the various repair materials and techniques, the installation cost and expected life of repairs were calculated. Factored into the installation cost were the price of materials, equipment, and labor, plus the time to prepare and fill the hole. Field tests collected data on how well the repairs held up, based on evidence of shoving, ravelling, dishing and disbonding. A patch was deemed a failure if the potholes reappeared.

The second component of the study—the expected life of the repairs—is not yet available, as a large number of the patches are still functioning. FHWA will continue to monitor the sites to see just how well these patches continue to hold up.

In the meantime, here's some advice from the research team.

- In adverse weather, use throw-and-roll or spray-injection procedures to fix potholes. The high-productivity procedures produce high-quality repairs, and will spare the maintenance crew from spending a lot of time out in the elements. Use

quality materials, and if you use a spray-injection device, make sure it is operated by a skilled technician.

- Use the best materials possible. You might save some money by purchasing a poorer quality material, but those savings will be quickly eaten up by the cost of patching the same potholes over and over. Moreover, the initial purchase cost of material is insignificant compared with the cost of labor, equipment, and motorist delays associated with patching operations.

- Do not expect patches placed under severe weather conditions to perform as well as those placed under more temperate conditions. The most critical period in the service life of a pothole patch appears to be the first few weeks, when the patch is setting. Wet weather and cold temperatures mean the patch will take longer to set, which will provide more opportunity for failure.

- When considering the cost of the most expensive cold mix, be sure to take into account the time that motorists will save because of fewer maintenance-caused delays. Work crews will also spend less time on the street, making their working conditions safer.

- Test the material to ensure compatibility between the aggregate and the binder.

- Keep in mind that the study evaluated only a limited number of materials. They are by no means the only cost-effective materials. Consider setting up regional centers for continued testing.

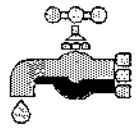
- Share your experiences and findings with others. Save them from reinventing the wheel.

For details on the study and its conclusions, order Innovative Materials Development and Testing, Volume 2: Pothole Repair (Publication No. SHRP-H-353; $15) from the Transportation Research Board's Business Office (Box 289, Washington, DC 20055; fax 202-334-2519). For more information about FHWA's implementation activities, contact John Sullivan at 202-366-1554. This publication can also be borrowed from the Alaska T2 Program. Contact Susan Earp at (907) 451-5320.

Reprinted from "Focus," December 1993.

Concrete Trivia....

What happens when only one gallon of water is added to one cubic yard of properly-designed concrete?



- Increases slump about one inch;
- Reduces compressive strength by as much as 200 psi;
- Wastes effect of 15 to 24 pounds of cement;
- Increases shrinkage potential about 10%;
- Increases possibility of seepage through concrete by up to 50%;
- Decreases freeze-thaw resistance by 20%
- Lowers quality of concrete in other ways!!

What happens when finisher says to leave the air out or reduce the percentage?

- Reduces yield;
- Same effect on workability as leaving out 50 pounds of sand per yard;
- Increases water demand by about one gallon per cubic yard;
- Increases chances of segregation and bleeding;
- Decreases durability;
- Decreases resistance to the action of de-icing salts.

Curing is a must for quality concrete!!!

Remember: Quality concrete is made with good, sound aggregates – rock and sand, cement, water and admixtures. Poor concrete is made with the same materials!!

Reprinted from "Mississippi T2 Newsletter," May 1993.

For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

Budgets, Barcodes, and Wands:
Computer Accounting for the Future

by LaRee Wilton

Do you know how much money you have left in your operating budget? Maintenance & Operations (M&O), Department of Transportation & Public Facilities (DOT&PF) in Fairbanks is improving its ability to track the M&O budget. This means up-to-the minute monitoring of a multitude of accounts, with the most current expenses included.

M&O has to report on massive amounts of financial information. They also send great quantities of paperwork to the Supply and Finance sections to order supplies, pay vendors and contractors, and process employee timesheets. All of this paperwork carries multiple lines of coding, some of which includes as many as thirty numbers. M&O has had to find more efficient methods of getting the budget and account tracking done. It is very important that the managers know how much they've spent, particularly at the end of the fiscal year.

Airport utility billings offer one small example of the complexity of tracking these accounts. M&O is responsible for over 175 utility bills per month for buildings and runways located all over the Northern Region, which is essentially the northern two-thirds of Alaska. These bills run from $500 to $40,000 and each is assigned eight, nine or ten lines of financial coding which requires a massive amount of input into a computer.

Jim Romersberger of M&O has been watching the reporting needs of his division grow for several years. In that time, he's watched technology move from mainframes which turned out reports every few months, to the development of the AKSAS computer system which can generate reports overnight on demand, to the personal computer (PC) capable of turning out reports of any kind whenever they're needed.

Reports have to be produced regularly to monitor the various expenses. Since there is a three to four week time lag between the time the expense is incurred and the time that it shows up in the DOT&PF AKSAS computer system, M&O also keeps the information in its own personal computers.

"People believe that everything is in AKSAS and you just have to use AKSAS. The problem is, you get the information out of AKSAS the way AKSAS wants to give it to you. If you want more detail or the information in a different format, AKSAS cannot provide that," Romersberger says.

Only the analysts and clerks use the AKSAS reports directly. Everyone else needs to have the data moved to other reports or spreadsheets in order to get the information into a usable form. Without some kind of a program to help, users are required to call up AKSAS data one screen at a time and manually copy each number from the screen to a spreadsheet on a PC. While this is a powerful tool, it is cumbersome, time consuming and prone to error.

With the information on their own PC's, the people at M&O can produce reports more quickly and monitor accounts much more efficiently, plus have a check and balance system to compare their reports with AKSAS. A benefit of this is that managers can assure that other sections' invoices don't get mis-coded to M&O accounts.

The near future goal is to have all the information readily at hand, so that each manager can just push a few buttons and generate reports.

With its newest database, M&O Administration is able to electronically capture AKSAS data and download it into its PC's, thus eliminating the hand copying.

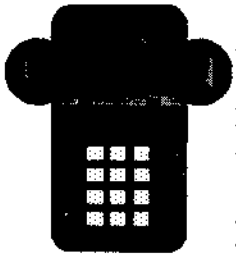
Currently, Romersberger observes the clerks using the "green eyeshade method" to manually compare printouts from their computers to the ones from AKSAS. Soon they will have their computers automatically comparing the two sets of data.

Since so much time is involved in entering codes, M&O decided to find a faster method. Barcoding has solved the problem. A computer programmer used the program CA-Clipper to set up the barcode system. When invoices come in, they are assigned codes as usual, but they are in the form of barcodes.

There have been a lot of improvements in the barcoding industry in the past few years and the new barcode technology which is available today is very effective. Barcoding not only saves time, it is accurate. There is no possibility of typographical errors. According to those in the Finance Section who now read the barcodes with wands, no fingers can move that fast, it saves a lot of time, and it's fun too.

In the future, the possibility exists to barcode payroll timesheets. Manually writing the code numbers for different projects on timesheets and manually keying them into the computer is time-consuming and has the possibility of error. Using a barcode could simplify this process. The computer can be used to create barcodes, then the wand could be used to input the codes to AKPAY (the state payroll system) and AKSAS.

Romersberger says that M&O has networked its computers so that the information entered on one computer is immediately available to all the other computers. In this system, not everyone can input data, but anyone can print reports. This system will work for any office in the state to track its budgets. Other offices would probably want different reports, but the data collection and storage would be the same.



Jim Romersberger at M&O in Fairbanks is available to talk to anyone interested in the computer programs that have been developed in his office dealing with data input, data organization, downloading data from AKSAS, and computer networking of the people in a working unit. Even entities which are not part of the state AKSAS system, such as municipalities and boroughs, could benefit from a similar computer-based budget tracking process.

Jim Romersberger
Assistant Maintenance Engineer
Phone: (907) 451-5285
FAX: (907) 451-5311

For More Information

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WHAT'S HAPPENING WITH METRIC

by Gene Rehfield, Statewide Metric Coordinator, Equipment and Operations Standards, Department of Transportation and Public Facilities, Headquarters, Juneau, Alaska

Based on federal Executive Order 12770 and Federal Highway Administration (FHWA) policy, the Alaska Department of Transportation & Public Facilities (DOT&PF) has initiated a program for the orderly conversion to the metric system of measurement, known as System International (SI).

All federal-aid highway construction projects (nationwide) approved for advertising after September 30, 1996 must be totally in metric. Some "pilot projects" are being designed in metric now.

At this time all metric conversion activities are directed towards highway projects, including marine highways. When guidance is received from the Federal Aviation Administration on their metric conversion requirements for airport construction, we will undertake conversions as necessary. Then, as desirable, other activities within DOT&PF (harbors, buildings, state equipment fleet, the international airport systems, etc.) will be considered for the transition to metric.

The following is a list of activities that have occurred or which are on-going with respect to metrication:

METRIC COORDINATORS

A metric coordinator for the DOT&PF has been appointed by the Commissioner. The State Metric Coordinator is Gene Rehfield, P.E., and he is located in the procedures DOT&PF Headquarters (HQ) in Juneau. The coordinator's duties include developing policy and procedures, disseminating metric information, liaison with other agencies, coordinating the conversion standards, and assisting the regions with their conversion activities. As of August 13, 1993, coordinators have also been appointed in each region and HQ Materials.

DOT&PF METRIC COORDINATORS

Statewide: Gene Rehfield, Juneau, 465-6968

HQ Materials: Earl Ellis, Anchorage, 269-6237

Marine Highway System: Bill Nelson, Juneau, 465-8889

Northern Region: Dan Urbach, Fairbanks, 451-2275

Southeast Region: Bob Hungerford, Juneau, 465-4492

Central Region: Dan Rice, Anchorage, 266-1520

TASK FORCE

A Highways Metric Task Force was appointed on March 30, 1993 to assist in the conversion process. The first meeting was held on April 8, 1993. A Metric Conversion Survey was distributed to assess needs, costs, and scheduling of metric conversions. A second meeting was held on July 2, 1993 to evaluate the metric survey and discuss new issues. A third meeting on July 29, 1993 consisted of metric training using the Workplace Training module. Subsequent meetings are being held as needed.

DOT&PF METRIC TASK FORCE MEMBERS

NAME FUNCTION	PHONE	TASKS
Gene Rehfield Design Standards	465-6968	Chairman, scheduling, librarian, funding
Jerry Murphy Standard Specs	465-6961	national standards, manuals
Jim Beeson Util., Traffic, M&O	465-6965	legislation, regulations, city-borough ordinances
Rosemary Matt Planning & Construction	465-6960	public affairs, construction, surveying standards
Carol Shelp Administration	465-8977	training, procedures
Duane Horn Info Systems	465-2907	computer programs, assist regions
Mike Higgs Bridge	465-8896	structures, hydraulics
Steve Boch FHWA	586-7544	resources and guidance

HIGHLIGHTS

POLICY

A DOT&PF metric policy has been implemented (See DPOL02.01.020). The policy states the purpose, cites the authority, and designates the Division of Engineering and Operations Standards with the responsibility for implementation of the program.

PROCEDURE

A DOT&PF metric procedure (DPDR 02.01.021) is currently out for departmental review.

METRIC PRACTICE GUIDE

A metric practice guide for the DOT&PF has been prepared and an initial limited distribution was made in April 1994. Many of the metric standards provided to us from American Association of State Highway and Transportation Officials (AASHTO) and FHWA will be incorporated, along with other helpful charts and information. A wider distribution of the Draft Metric Practice Guide is planned for late Spring 1994.

TRAINING

Our Technology Transfer (T2) Program has purchased a metric training module called "SI Metric in the Workplace" which is available on loan. This course consists of 5 video tapes and a workbook. Total time needed to complete the course is approximately 3 to 4 hours. Contact Susan Earp, 907/ 451-5320, at the T2 Program office to borrow these materias.

The General Services Administration (GSA) presented a metric training course called "Metrication in Transportation" in Juneau, Anchorage and Fairbanks on November 3rd, 4th & 5th 1993. The course was mainly an overview of the national metric transition.

The National Highway Institute (NHI) has developed a metric training course which is geared specifically to highway agency engineers and staff. It was held in Anchorage on March 17, 1994. Additional sessions are planned for the Fall of 1994 in Anchorage, Juneau and Fairbanks. Contact the T2 Program or your local Coordinator.

CONSTRUCTION PROJECTS

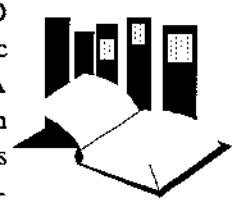
To date, 20 highway projects have been identified for metric design over the next two to three years. The Haines Mud Bay Road was the first metric project to be advertised (October 1993).

METRIC SIGNS

Metric speed limits, distances, load limits and other traffic signs are expected to be part of the metric conversion. The timing of the sign replacement, however, won't coincide with the conversion of other engineering standards, since national coordination and funding are required. Although FHWA policy requires the state highway agencies to convert to metric by the end of FY96, the 1994 Transportation Appropriations Act specifically prohibits funding of metric signs during FY94. The Clinton administration has recently decided not to convert signs to metric by 1996.

METRIC REFERENCES

Metric references are being assembled at headquarters to assist in developing policy and procedures, writing specifications, making management decisions, and training. They include AASHTO and American Standards TM metric standards and policies, FHWA metric guidance, GSA metric design guide, metric standards from various states and canadian provinces (including sample plans and specifications), metric conversion computer software, training course literature, subscriptions to several national newsletters, sample metric conversion calculators, slide rules and posters. Copies of some of these references are available from the Regional/System Coordinators and the T2 Program.



If you have question regarding metrication, please contact your Regional Metric Coordinator or the Alaska T2 Program.

CORRECTION

In the last issue of the newsletter, the METRICATION insert included a table of "Approximate Comparisions." Under the section of temperature, water boils at "100," rather than "200," as stated in the table.

Thank you to all the readers of our newsletter that brought this to our attention. We appreciate your input!

For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

NEW PUBLICATIONS AVAILABLE FOR LOAN 1994

No. 35

Place a check by the publications you wish to borrow.

____ **Arizona Bicycle Facilities Planning and Design Guidelines,** ID-1208, Facilities Planning committee, Arizona Bicycle Task Force, November 1, 1988.

____ **Bicycle Compatible Roadways-Planning and Design Guidelines,** ID-1213, The New Jersey Department of Transportation, December 1982.

____ **Bikeway Planning and Design,** ID-1209, Chapter 100, Highway Design Manual, California Department of Transportation, July 1, 1990.

____ **Consumers Guide to Dust Control Technologies,** ID-1211, CR-R-89034, Arizona Department of Environmental Quality, June 1989.

____ **Continuing Project on Legal Problems Arising Out of Highway Programs,** ID-1205, NCHRP Legal Research Digest, Transportation Research Board, National Research Council, 1993.

____ **Design and Construction Criteria for Bikeway Construction,** ID-1207, 23 CFR Parts 625, 652 and 663, Federal Register, Vol. 45, No. 151, Monday, August 1980, Department of Transportation, Federal Highway Administration, FHWA Docket No. 79-3, Notice 2.

____ **Development and Testing of a Seismic Pavement Analyzer,** ID-1202, SHRP-H-375, Strategic Highway Research Program, National Research Council, December 1993.

____ **Development and Validation of Performance Prediction Models and Specifications for Asphalt Binders and Paving Mixes,** ID-1219, SHRP-A-357, Strategic Highway Research program, National Research Council, October 1993.

____ **Development of Micro-Based Interactive Computer Programs - Hydraulics,** ID-1198, OHIO/HWY-04/93, HY-3-93, Final Report, Ohio Department of Transportation, The University of Akron, Department of Civil Engineering, March 15, 1993.

____ **Driver Performance: Measurement and Modeling, IVHS, Information Systems, and Simulations,** ID-1217, Transportation Research Record No. 1403, Operations and Safety, Transportation Research Board, National Research Council, 1993.

____ **Factors Affecting Properties and Performance of Pavements and Bridges 1991,** ID-1215, Transportation Research Record No. 1301, Materials, Construction, and Maintenance, Transportation Research Board, National Research Council, 1993.

____ **Field Demonstrations of Advanced Data Acquisition Technology for Maintenance Management,** ID-1206, NCHRP Report 361, Transportation Research Board, National Research Council, 1993.

____ **Fundamental Properties of Asphalt-Aggregate Interactions Including Adhesion and Absorption,** ID-1200, Strategic Highway Research Program, National Research Council, December 1993.

____ **Highway and Traffic Safety and Accident Research, Management, and Issues,** ID-1216, Transportation Research Record No. 1401, Safety and Human Performance, Transportation Research Board, National Research Council, 1993.

____ **Integrating Transportation Management Systems into Transportation Planning and Operations National Conference Proceedings,** ID-1203, Vanderbilt Engineering Center for Transportation Operations and Research, Vanderbilt University, Sheraton Music City Hotel, Nashville, TN, November 7-10, 1993.

____ **Large-Vehicle Safety Research,** ID-1218, Transportation Research Record No. 1407, Safety and Human Performance Public Transit, Transportation Research Board, National Research Council, 1993.

____ **Mechanical Behavior of High Performance Concretes: High Early Strength Concrete,** ID-1223, SHRP-C-363, Volume 4, Strategic Highway Research Program, National Research Council, December 1993.

____ **Mechanical Behavior of High Performance Concretes: High Early Strength Fiber Reinforced Concrete**, ID-1225, SHRP-C-366, Volume 6, Strategic Highway Research Program, National Research Council, October 1993.

____ **Mechanical Behavior of High Performance Concretes: Production of High Performance Concrete**, ID-1221, SHRP-C-362, Volume 2, Strategic Highway Research Program, National Research Council, November 1993.

____ **Mechanical Behavior of High Performance Concretes: Summary Report**, ID-1220, SHRP-C-361, Volume 1, Strategic Highway Research Program, National Research Council, October 1993.

____ **Mechanical Behavior of High Performance Concretes: Very High Strength Concrete**, ID-1222, SHRP-C-363, Volume 3, Strategic Highway Research Program, National Research Council, November 1993.

____ **Mechanical Behavior of High Performance Concretes: Very High Strength Concrete**, ID-1224, SHRP-C-364, Strategic Highway Research Program, National Research Council, November 1993.

____ **New Jersey Bicycle Information**, ID-1212, Motor Vehicle Services, February 1993.

____ **New Jersey Bicycling Information**, ID-1214, New Jersey Department of Transportation.

____ **Pavement Maintenance Effectiveness**, ID-1199, SHRP-H-358, Strategic Highway Research Program, National Research Council, November 1993.

____ **Pavement Management and Weight-in-Motion**, ID-1210, Transportation Research Record 1200, Transportation Research Board, National Research Council, 1988.

____ **Seismic Pavement Analyzer Operations Manual with Technical Specifications**, ID-1201, SHRP-H-374, Strategic Highway Research Program, National Research Council, December 1993.

____ **Stal- og betongelementer i losmassetunneler**, ID-1203, Publikasjon nr. 69, Staten vegvesen Vegdirektoratet, Veglaboratoriet, English summary.

____ **Structural Characterization of Asphalt Overlays Placed on Heavily Trafficked Concrete Pavements**, ID-1197, FHWA-RD-91-029, U.S. Department of Transportation, Federal Highway Administration, December 1993.

These publications may be borrowed for three weeks. However, if you need the materials longer, just contact our office for an extension. Questions? Contact Susan Earp at Alaska T2 Program at (907) 451-5320 or TDD: (907) 451-2363.

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NEW VIDEOS AVAILABLE FOR LOAN 1994

No. 35

Place a check by the videos you wish to borrow.

____ **Rustbuster** , ID-263, by John Apostolos, 20min.

____ **Safely Controlling the Power of the Backhoe/Loader,** ID-264, VISTA Start Smart Video, 3 tape video set. Tape 1, "Walk Around the Backhoe/Loader," 12min. Tape 2, "On-the-Job Operating Safety Awareness," 15min. Tape 3, "Maintenance/Transportation," 10min.

ADDITIONAL PUBLICATIONS AVAILABLE FOR LOAN

Place a check by the publications you wish to borrow.

____ **Accident Data Analysis of Side-Impact, Fixed Object Collisions**, ID-1232, FHWA-RD-91-122, May 1994, pg. 94.

____ **Binder Characterization and Evaluation: Chemistry,** ID-1229, SHRP-A-368, Volume 2, Strategic Highway Research Program, National Research Council, November 1993.

____ **Binder Characterization and Evaluation, Volume 3: Physical Characterization**, ID-1240, SHRP-A-369, Strategic Highway Research Program, National Research Council, April 1994, 475pp.

____ **Bridge and Hydrology Research 1991**, ID-1228, Transportation Research Record No. 1319, Highway and Facility Design; Bridges, Other Structures, and Hydraulics and Hydrology, Transportation Research Board, National research Council, 1991.

____ **Cathodic Protection of Concrete Bridges: A Manual of Practice,** ID-1230, SHRP-S-372, Strategic Highway Research Program, National Research Council, December 1993.

____ **Concrete Bridge Protection and Rehabilitation: Chemical and Physical Techniques - Corrosion Inhibitors and Polymers,** ID-1242, SHRP-S-666, July 1993, 249pp.

____ **Concrete Bridge Protection, Repair, and Rehabilitation Relative to Reinforcement Corrosion: A Methods Application Manual,** ID-1241, SHRP-S-360, Strategic Highway Research, National Research Council, October 1993, 268pp.

____ **Development of Anti-Icing Technology,** ID-1236, SHRP-H-385, Strategic Highway Research Program, National Research Council, April 1994, 479pp.

____ **Development of Design Guidelines for Use of Shredded Tires as a Lightweight Fill in Road Subgrade and Retaining Walls,** ID-1233, Report Number 94-04, January 1994, 137pp.

____ **Early Analyses of LTPP General Pavement Studies Data: Executive Summary,** ID-1235, SHRP-P-392, Strategic Highway Research Program, National Research Council, April 1994, 32pp.

____ **EMBANK: A Microcomputer Program to Determine One-Dimensional Compression Settlement Due to Embankment Loads User's Manual,** ID-1251, U.S. DOT/FHWA, FHWA-SA-92-045, Office of Engineering, Office of Technology Applications, May 1993, 157pp.

____ **Evaluation on the AASHTO Design Equations and Recommended Improvements**, ID-1239, SHRP-P-394, Strategic Highway Research Program, National Research Council, April 1994, 214pp.

____ **Federal Highway Administration Technology Applications Program,** ID-1242, FHWA-SA-93-016, U.S.DOT/FHWA, Office of Technology Applications, Safety and System Applications, January 1993, 115pp.

____ **Field Manual for Maturity and Pullout Testing on Highway Structures,** ID-1227, SHRP-C-376, Strategic Highway Research Program, National Research Council, December 1993.

____ **Ground Penetrating Radar Surveys to Characterize Pavement Layer Thickness Variations at GPS Sites**, ID-1238, SHRP-P-397, Strategic Highway Research Program, National Research Council, April 1994, 50pp.

____ **Guidelines for Timing Contraction Joint Sawing and Earliest Loading for Concrete Pavements, Volume II: Appendix**, ID-1243, U.S. DOT/FHWA, FHWA-RD-91-080, February 1994, 200pp.

____ **Maintenance Work Zone Safety Devices Development and Evaluation**, ID-1231, SHRP-H-371, Strategic Highway Research Program, National Research Council, November 1993.

____ **Management Training and Development Programs: A Synthesis of Highway Practice**, ID-1244, National Cooperative Highway Research Program, NCHRP Synthesis 188, 1994, 56pp.

____ **Methodology for Optimizing Signal Timing: MOST Volume 3 - PASSER II-90 Users Guide**, ID-1245, U.S. DOT/FHWA, December 1991, 198pp.

____ **The Nature of and the Reasons for the Worldwide Decline in Drinking and Driving**, ID-1246, Transportation Research Circular, Number 422, Transportation Research Board, National Research Council, April 1994, 71pp.

____ **Optimization of Highway Concrete Technology**, ID-1226, SHRP-C-373, Strategic Highway Research Program, National Research council, January 1994.

____ **Pavement Surface Courses, Stone Mastic Asphalt Pavements, and Asphalt Concrete Recycling**, ID-1234, Transportation Research Record No. 1427, Transportation Research Board, National Research Council, 1993, 60pp.

____ **SPILE: A Microcomputer Program for Determining Ultimate Vertical Static Pile Capacity User's Manual** , ID-1248, U.S. DOT/FHWA, FHWA-SA-92-044, Office of Engineering, Office of Technology Applications, June 1993, 172pp. Disk included.

____ **The Superpave Mix Design Manual for New Construction and Overlays**, ID-1237, SHRP-A-407, Strategic Highway Research Program, National Research Council, May 1994, 172pp.

____ **Transient Protection, Grounding, and Shielding of Electronic Traffic Control Equipment**, ID-1247, National cooperative Highway Research Program Report 317, Transportation Research Board, National Research Council, June 1989, 84pp.

____ **Transportation Infrastructures: Benefits of Traffic Control Signal Systems Are Not Being Fully Realized** , ID-1250, Report to the Chairman, Committee on Energy and Commerce, House of Representatives, United States General Accounting Office, GAO/RCED-94-105, March 1994, 33pp.

These publications may be borrowed for three weeks. However, if you need the materials longer, just contact our office for an extension. Questions? Contact Susan Earp at Alaska T2 Program at (907) 451-5320 or TDD: (907) 451-2363.

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TRIS . . . Pavement Marking Removal /OSHA. . . Pile Analysis Program___1994

FACTS ABOUT TRIS

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Publications

TRIS publishes three abstract bulletins, which are available by subscription. They are the annual Transit Research Abstracts, Highway Safety Literature, and quarterly Highway Research Abstracts. Call the TRB Publications Sales Office at (202) 334-3214 for subscription information.

Marking Removal May "Trigger" OSHA Fine

A new OSHA standard, effective August 2, 1993, assumes that anyone removing paint or other coatings containing lead will be exposed to unsafe to unsafe levels of lead and must be protected by a respirator, protective clothing, and other safety precautions such as providing laundry and washroom facilities.

According to an article in the July 1993 *Journal of Protective Coatings and Linings*, titled, "OSHA's New Rule on Lead: Changing the Practice and Price of Lead Paint Removal," certain construction tasks, such as the removal of paints containing lead automatically "trigger" the assumption of unsafe exposure. This makes it mandatory for the employer to institute countermeasures even before the actual exposure is measured.

What Stripers Need to Know About the Interim Rule

The new standard reduces the Permissible Exposure Limit (PEL) for construction workers from 200 micrograms of lead per cubic centimeter of air to 50 micrograms averaged over an eight hour day. The standard also established 30 micrograms as an "Action Level" (AL), the point where some precautions against exposure are required short of those mandated in the interim rule.

Any amount of lead present at the worksite means that the employer must determine, through records or through monitoring, whether workers' exposure is at or above the action level. Removing pavement markings through blasting or grinding is a "task-related trigger" because OSHA assumes an exposure level beyond the AL and the PEL.

Because of the lag between the time of monitoring and getting the results, OSHA requires that workers in "trigger" tasks are protected as if they are being exposed beyond the PEL. That means they are required to wear specific types of respirators and protective clothing. The employer must provide training in the use and care of the protective clothing and equipment, even to the point of providing laundry services and changing areas. Hand washing facilities and separate eating areas may also be required.

Employers must make medical services available to workers in "trigger tasks" to assure that blood lead levels are below 40 micrograms per deciliter of blood. Workers whose lead blood level is above 50 micrograms may be reassigned for a period of up to 18 months to a lower-exposure task with no loss of wages, seniority or benefits.

The Bottom Line

The bottom line is that on line removal operations, OSHA assumes workers are exposed beyond the PEL and employers are therefore required to institute these countermeasures until testing proves that lead exposure is below the permissible limits. The new regulation will likely increase costs for the striping contractors who comply. According to the *JPCL* article, OSHA has not yet identified enforcement strategies or penalties.

"The Interim Final Rule for Lead Exposure in Construction" was published in the May 4, 1993, *Federal Register* under Occupational Safety and Health Administration. Copies of the Federal Register are available in most major community and college libraries or from the OSHA Office of Publications, Room 3101, US Department of Labor, Washington, D.C. 20210; (202) 219-4667.

Adapted from the "ATSSA Signal," November 1993.

Pile Analysis Computer Program and User Manual

The T2 Library now has a copy of the Federal Highway Administration's (FHWA) "COM624P—Laterally Loaded Pile Analysis Program for the Microcomputer, Version 2.0 Manual," available for loan. The computer program and manual are for geotechnical and structural engineers involved in the design of deep foundations. The manual illustrates how to analyze piles or drilled shafts subjected to lateral loads. The program includes screen windows, pull down menus, a subroutine to compute ultimate bending capacity, and an option to use internally-generated flexural rigidity of cracked sections in pile deflection computations.

State highway agencies can contact FHWA's Research and Development Report Center at (703) 285-2144 or the general public can contact McTrans Center, University of Florida, by telephone at (904) 392-0378 or request by fax at (904) 392-3224, to obtain copies.

To borrow the manual and computer disk from the T2 Program, contact Susan Earp at (907) 451-5320.

Questions regarding the manual and disk should be directed to Mr. Chien-Tan Chang at (202) 366-6749.

To borrow any of these publications, contact Susan Earp at 907/ 451-5320.

Recommended Practices for Use of Traffic Barrier and Control Treatments for Restricted Work Zones, NCHRP Report 358, National Cooperative Highway Research Program (NCHRP), Transportation Research Board, National Research Council, 1994. By H.E. Ross, Jr., R.A. Krammes, D.L. Sicking, K.D. Tyer, and H.S. Perera of the Texas Transportation Institute, Texas A&M Research Foundation, The Texas A&M University System, College Station, Texas.

This report is for those who design and construct highways, particularly those persons responsible for the development, implementation, and maintenance of traffic control plans for work zones. The report provides guidelines – developed from empirical and analytical studies – intended to enhance the safety of the motoring public and construction workers.

NCHRP Project 17-8 was a study to address the needs of improvements in work zone traffic safety. The study used conventional and newly developed barriers to test their potential use in restricted work zone sites. Calibration of the Highway Vehicle Object Simulation Model (HVOSM) was a result of these tests.

This manual describes the guidelines to be used in developing work zone safety sites using benefit/costs analysis and criteria for setups taking site-specific characteristics into considerations. The complete report along with the documentation of the crash tests are available from NCHRP on loan. This includes an outline of the crash tests in NCHRP Report 320, "Recommended Proccdures for the Safety Performance Evaluation of Highway Appurtenances," in Appendixes A and B. HVOSM changes for stationary and movable barriers are listed in Appendixes C and D. A summary of the project is also available on videotape from NCHRP.

Innovations in Travel Survey Methods, TRR No. 1412, *Planning and Administration*, Transportation Research Board, National Research Council, 1993.

The papers in this volume present a variety of innovative techniques to monitor, collect, and disseminate travel survey information. Several papers focus on techniques of collecting travel information, such as travel diaries, origin-destination surveys of households and expansion weighing procedures to generate population estimates, factoring procedures to eliminate nonresponse bias, a two-stage household survey mail-back questionnaire, and an analysis of underreporting of trips in telephone interviews.

Also in this Record are papers reporting the results of video and computer applications. Information includes: video imaging technology to collect flow rate data; the effective use of video when roadside interviews are not possible; and the practice of image processing for the segmentation and matching of vehicles in road images. Computer applications include a survey system that uses a touch-screen interface to elicit data on user satisfaction and a data acquisition system that employs tape switch sensors on the roadway. The overall effectiveness of entering information from a telephone interview survey directly into a computer file is also studied.

Innovations in Travel Behavior Analysis, Demand Forecasting, and Modeling Networks, TRR No. 1413, *Planning and Administration*, Transportation Research Board, National Research Council, 1993.

This collection of papers includes: travel behavior models and simulations, modeling telecommunications attitudes and preferences, mode choice applications, and transportation planning modeling and applications.

Travel behavior models and simulations papers cover "estimation of discrete travel choice models with no randomly distrusted variables with time, a simulation model of activity scheduling behavior, and simulation for laboratory studies of the dynamics of commuter behavior under real-time information."

The telecommunications papers focus on a preference approach to modify the adoption of telecommuting, employee attitudes and preferences toward telecommuting, and a choice model of employee participation in telecommuting.

Modeling rail access mode and station choice, central area mode choice and parking demand, and appreciation of nested logic models of intercity mode choice are covered in the papers on mode choice.

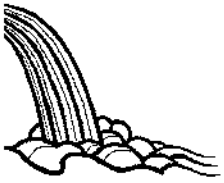
Papers in transportation planning modeling describe a new structure for transportation planning models; application of a geographic information system-based modeling system to a regional transportation problem; specification, estimation, and validation of a new trip generalization model; a new equilibrium assignment model; and a study of the geometric properties of vehicle routes that carry shipments of variable size.

Construction Robotics and Automation, and Foundations Engineering, TRR No. 1406, *Soils, Geology, and Foundations*, Transportation Research Board, National Research Council, 1993.

This Record provides information on current technological advances and traditional geotechical investiga-

tions. The papers may be grouped into three themes: construction robotics and automation, and expert systems; aspects of geotechnical engineering; and testing, characteristics, and behavior of soils, subgrades, and other materials that are part of pavement systems.

Magnitude and Frequency of Floods in Alaska and Conterminous Basins of Canada, Water-Resources Investigations Report 93-4179, U.S. Geological Survey, Prepared in cooperation with the State of Alaska, Department of Transportation and Public Facilities and Federal Highway Administration. By Stanley H. Jones and Charles B. Fahl, U.S. Department of the Interior, United States Geological Survey, Anchorage, Alaska, 1994.



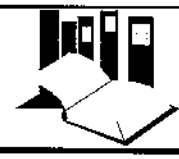
Problem: floods in Alaska and conterminous basins of Canada result from rainfall, snowmelt runoff, a combination of rain on snow, rapid melting of snow and ice during eruptions of c/glacier-clad volcanoes, and the sudden release of water stored behind natural dams"dams created by glaciers, river ice, snow (avalanches), and rock and unconsolidated materials (landslides and debris flows). Information about the probable magnitude and frequency of floods, whatever their cause, is necessary in order to design culverts, bridges, and other hydraulic structures that must withstand or accommodate those floods, and is useful for floodplain management.

A data-collection program designed to define flood magnitudes and frequency on small streams"those with drainage areas of about 50 mi^2 or less"throughout Alaska began in 1962. The U.S. Geological Survey, the State of Alaska Department of Transportation and Public Facilities, and the Federal Highway Administration cooperated in the data-collection. Additional support for collection of peak discharge data from other Federal, State, and local agencies, and Canada. Various reports have proved analyses of peak discharge data since 1964 for Alaskan streams.

This report:

- describes methods to evaluate the magnitude and frequency of floods at sties on streams with natural flow, and
- provides procedures for estimating flood magnitude and frequency at ungaged sites in Alaska and conterminous basins of Canada.

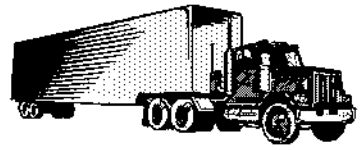
The authors used flood data from stations that were operated for at least eight years on unregulated streams, on nonurban streams, or on streams unaffected by 1) failure of natural dams, 2) failure of snow avalanche dams, 3) sudden releases of channel blockage by snow and ice, or 4) rapid melting of snow and ice during volcanic eruptions.



More Publications Available For Loan

Intelligent Vehicle Highway Systems Projects, U.S. Department of Transportation, March 1994.

The Intelligent Vehicle Highway Systems program has collected and defined many user services which will help to create safer and better informed travelers, improved traffic control systems, and more efficient transit and commercial vehicle operations.



Accident Data Analysis of Side-Impact, Fixed Object Collisions, ID-1232, Report No.: FHWA-RD-91-122, May 1994, U.S. Dept. of Transportation

This study reports on various conditions involved in side-impact collisions. Conditions include roadway type, surface conditions, injury type, occupant age and time of day. Passenger-vehicle side-impacts are dangerous because the side of the vehicle usually provides little protection to the occupant. Vehicle occupants confronted by the hard fast intrusion of narrow objects such as utility poles or guard rail ends, are most likely to suffer serious injury or death.

Landslides: Investigation and Mitigation

This publication is a new and more developed edition of two previous Transportation Research Board (TRB) special reports published in 1958 and 1978. Due to many changes in the way landslides are investigated and mitigated, the TRB Study Committee on Landslides: Analysis and Control produced this text to incorporate the latest advances in a manner useful to transportation engineers. *Landslides: Investigation and Mitigation* is a result of more than three years of effort by the 15-member TRB Study Committee.

To order this report contact TRB Business Office, 2101 Constitute Avenue, N.W., Washington, D.C. 20418, (202) 334-3214.

Principles of Writing Highway Construction Specifications

The Alaska T2 Program has a limited number of copies available of Books 1 and 2 of *Principles of Writing Highway Construction Specifications*. The participant and case studies/workshops notebooks are from the National Highway Institute course number 13401 of the same name. If you want a copy of these notebooks, contact Susan Earp at (907) 451-5320.

Speak Out!

We want to know what you think. Write us anytime or attend any of our public workshops or meetings. We will hold public meetings to discuss the DRAFT Statewide Transportation Plan beginning in September, 1994, in the following communities:

- ✓ Anchorage
- ✓ Barrow
- ✓ Bethel
- ✓ Dillingham
- ✓ Fairbanks
- ✓ Galena
- ✓ Haines
- ✓ Juneau
- ✓ Kenai
- ✓ Ketchikan
- ✓ Kodiak
- ✓ Naknek
- ✓ Nome
- ✓ Palmer
- ✓ Valdez

Watch your newspaper for specific dates, times and places.

VISION: 2020

Alaska's Long-Range Statewide Transportation Plan

In 1991 Congress revised the way it funds transportation projects nationwide. Among other things, it requires each state write a long-range, 20-year transportation plan. The Department of Transportation and Public Facilities is responsible for writing Alaska's plan. It's an opportunity to set realistic goals to meet our state's unique needs and to develop ways to meet those goals that will create the system we want and need. This will be a down-to-earth, sensible guide for making transportation funding decisions over the next twenty years.

You can help. Here's how you can take part in this critical work.

Alaska Department of Transportation
and Public Facilities
Division of Planning
3132 Channel Drive, Room 200
Juneau, AK 99801-7898

Vision: 2020
Alaska's Statewide
Transportation Plan
Draft Outline

Introduction

I. Statewide Policies
   A. Access, Connections, Capacity
   B. Rural Economic Growth
   C. Community Development Considerations
   D. Transportation Enhancements
   E. Management Systems & Investment Strategies

II. Central Region
   A. Transportation Corridors
   B. Anchorage Area Plan

III. Northern Region
   A. Transportation Corridors
   B. Fairbanks Area Plan

IV. Southeast Region
   A. Transportation Corridors
   B. Urban Area Plans

Appendices
   A. Planning Coordination
   B. Bibliography

We will consider these factors as appropriate when we develop Vision: 2020, Alaska's Statewide Transportation Plan.

- ○ Energy Use Goals
- ○ Bicycle Facilities & Pedestrian Walkways
- ○ Intermodal Access to Major Attractions
- ○ Social, Economic & Environmental Effects
- ○ Non-metropolitan Transportation Needs
- ○ Metropolitan Area Plans
- ○ Metropolitan Connectivity
- ○ Recreational Travel & Tourism
- ○ Water Pollution & Coastal Zone Plans
- ○ Indian Tribal Gov't Concerns
- ○ Existing Systems Management
- ○ Traffic Congestion
- ○ Transit Enhancement & Expansion
- ○ Complementary Transportation/Land Use Decisions
- ○ Innovative Financing
- ○ Right-of-Way Preservation
- ○ Long Range Needs
- ○ Commercial Vehicle Movement
- ○ Life Cycle Costs
- ○ Transportation Enhancements
- ○ State & local roads

We will also consider the results from the following management systems...

- ○ Pavement
- ○ Bridge
- ○ Highway Safety
- ○ Traffic Congestion
- ○ Public Transportation
- ○ Intermodal Transportation

and the

- ○ Traffic Monitoring System

☐ Progress Report. Send me more information! I want to know how Vision: 2020, Alaska's Statewide Transportation Plan is progressing.

☐ Draft Plan. Send me a draft copy of Vision: 2020, Alaska's Statewide Transportation Plan, when it's ready in early September.

Name _____

Organization _____

Address _____

City _____ State _____ Zip _____

Clip and mail this to:
Vision: 2020, Alaska DOT&PF
Division of Planning
3132 Channel Drive, Room 200
Juneau, Alaska 99801-7898

1994/95 T2 CALENDAR OF EVENTS

DATE	EVENT	SPONSOR/CONTACT	LOCATION
Aug 19	Update on Wetlands and 404 Permitting: A Process in Transition	ASCE, 1-800-548-2723 or 212/ 705-7668	Juneau, Alaska
Sep 11-14	1994 National Rural IVHS Conference	Virginia Tech for Transportation Research, 703/ 231-9918	Blacksburg, Virginia
Sep 26-29	*NHI #14126 Appraisal & Appraisal Review for Federal-Aid Highway Programs	DOT&PF, 907/ 451-5320	Anchorage, Alaska
Oct 4-6	*NHI #14205 Project Development and Environmental Documentation	DOT&PF, 907/ 451-5320	Sheraton Anchorage Hotel, Anchorage, Alaska
Oct 16-19	1994 64th ITE Annual Meeting	Institute of Transportation Engineers, 202/ 554-8050	Loews Anatole Hotel, Dallas, Texas
Oct 24-28	SHRP Asphalt Technology	FHWA, Nevada DOT, and others, 702/ 784-1433	Reno Hilton, Reno, Nevada
Nov 2-4	Second Annual United States Hot Mix Asphalt Conference	National Asphalt Pavement Association, 301/ 731-4748	The Westin Hotel, Indianapolis, Indiana
Feb 18-23, 1995	40th Annual Conference of the National Asphalt Pavement Association (NAPA)	NAPA, Ms. LaDonna Burton, 301/ 731-4748	Hilton Waikoloa Village Resort, Hawaii
Jul 30 - Aug 2, 1995	Pacific Rim TransTech Conference	Washington State DOT & FHWA, William P. Carr, 206/ 705-7802	Seattle, Washington

*NHI - National Highway Institute

Meetings Around Alaska

Society	Chapter	Meeting Days	Location
ASCE	Anchorage Fairbanks Juneau	Monthly, 3rd Tues., noon Monthly, 3rd Fri., noon Monthly, 1st Wed., noon*	Northern Lights Inn Captain Bartlett Inn Breakwater Inn *except June - August
ASPE	Fairbanks	Monthly, 1st Fri., noon	Captain Bartlett Inn
ASPLS	Anchorage Fairbanks	Monthly, 3rd Tues., noon Monthly, 4th Tues., noon	Executive Cafeteria Federal Building Sunset Inn
ITE	Anchorage	Monthly, 3rd Thurs., noon	Sourdough Mining Company
IRWA	Sourdough Ch. 49 Arctic Trails Ch. 71 Totem Ch. 59	Monthly, 3rd Thurs., noon** Monthly, 2nd Thurs., noon# Monthly, 1st Wed., noon	West Coast Internat'l Inn **except July & Dec. Captain Bartlett Inn #except July & December Mike's Place, Douglas
ICBO	Northern Chapter	Monthly, 1st Wed., noon	Zach's, Sophie Station
AWRA	Northern Region	Monthly, 3rd Wed., noon Brown Bag Lunch	Rm 531 Duckering Bldg., University of Alaska Fairbanks, Larry Hinzman, 474-7331

To publicize an event in our calendar, contact us at (907) 451-5320.

Who's Who in Alaska's Transportation

Fred Korpinen, Road Maintenance Director, Kenai Peninsula Borough, Soldotna, Alaska

Love for the Kenai Peninsula and the warmth of its people are the compelling factors that led Fred Korpinen, the Borough Roads Director, to remain in Alaska. He accepts that even though his career offers demanding assignments, it gives him the opportunity to use of his technical and managerial skills to keep Kenai Peninsula streets well-maintained.

In order to accomplish his goals, Korpinen developed a strong computer database for all roads in a maintenance system. The system provides powerful tools for street maintenance which enables staff and the Road Board to quickly determine which roads need the most attention and in what priority.

Born and raised in Rockland, Maine, Korpinen developed a love for the outdoors and the open sea. His family was deeply involved in road building in the rural setting.

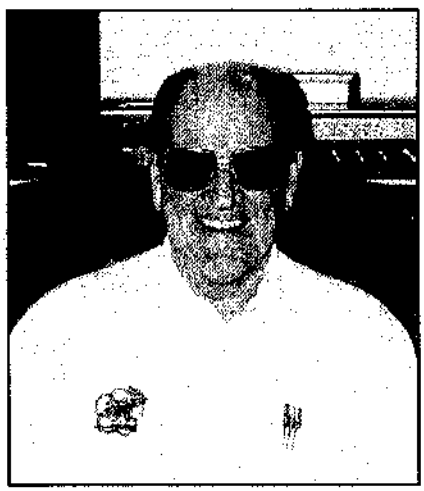
"They instilled in my mind various methods and cures for gravel roadways," Korpinen said. Impressed by his family's commitment to road construction activities, Korpinen decided to someday become an active player in the construction game.

He followed through with his dreams and became the Roads Director of Kenai Peninsula Borough in December 1991. Before his present position, Korpinen had other interesting career highlights. He joined the U.S. Army in 1951 and his military career brought him to Alaska in 1952. He went to various places in Alaska including the Aleutian chain. Before his release from the military in 1967, Korpinen attained the rank of First Sergeant (E8).

Korpinen remained in Alaska, owning and operating a couple of businesses in the Kenai area with Charlotte, his wife of 40 years.

"Commercial fishing filled our summers for 28 years," Korpinen said.

During the building of the pipeline, Korpinen worked at the Valdez Terminal as a material manager for Fluor Contractors and remained there for three years. "But the lure of the Kenai Peninsula kept beckoning and I returned to work for the Kenai Native Association as a Facility Manager for a period of eight years," Korpinen said.



He worked for an organization on the Kenai Peninsula as General Manager before being lured away to the North Slope in the early 80's . In his capacity as a Project Manager for a company under contract to ARCO, Korpinen's responsibilities were varied and challenging particularly due to the extreme weather conditions.

"Being in charge of all roads and site maintenance and also having the responsibility for all warehousing and storage pads, made this assignment one of the greatest learning challenges in my career," Korpinen said. As the Roads Director looks back over those years and experiences, he states, "I would not have missed it for the world."

According to Korpinen, the hardest part of his job is public relations. "The most difficult part of the job is trying to make everyone happy in the course of executing our duties," Korpinen said. "We certainly incur people's displeasure, but that is expected when our task is to keep about 2,000 dusty and bumpy roads maintained."

His favorite aspect of the job is making improvements. "Refining the road maintenance system, dealing with the public and finding solutions to their problems can be fulfilling and rewarding assignments," Korpinen said.

"Bad roads cost more than good roads. It is imperative that maintenance operation becomes efficient and manageable. Otherwise we end up in 'panic maintenance' and that is always costly and inefficient."

Besides his office duties, Korpinen is an avid golfer, and enjoys fishing too. However, professional commitments have made it difficult to participate actively in his hobbies.

"Now the only fishing I do is dipping my golf ball out of a water hazard," the Roads Director said jokingly.

Korpinen is devoted to many fraternal organizations. He is past President of the Alaska Moose Association, past Commander of Post #20, American Legion, and a member of the Veterans of Foreign Wars. Korpinen is also a member of the Masonic Lodge and Shriners Club of Alaska.

For the future, the Roads Director plans to continue the refining process for road maintenance problem-solving. He encourages all road agencies in the state to share their information for the betterment of the transportation system in Alaska.